

ARM Manus Research Station

Site Visit 0606M Report

Visit Duration: 11 June to 16 June 2006

Manus Island, Papua New Guinea

## SV-0606M Site Maintenance Final Task Report

|   |  |
|---|--|
| <b>Site:</b> Manus  | <b>Proposed Dates on Site:</b> 11 - 16 June 2006   |
| <b>Team Members:</b><br>Rex Pearson<br>Kevin Widener<br>Hastings Deering Tech | <b>Ship or hand carry prior to SV:</b>   |
|   | <b>Safety:</b><br>Major Hazards: Caustic chemicals (KOH), Explosive gas (H2), AC electricity<br><br>Hazard Controls: BOM Electrolyser Handbook, BM Electrolyzer Operations/Maintenance Training, ASNZS 4836/2001-Safe Working on LV Electrical Installations, 2-man rule |
|   | <b>Reminder:</b><br>When replacing items (e.g., desiccant, filters, etc.), record and report the quantity of spares left on site.  |

### Site Tasks

| Priority | System | Date Completed (dd/Month) | Service Time in Hours | Tasks/Assoc Hazards-Controls<br><small>For each priority item insert new line(row) for each date/time entry</small>                             |
|----------|--------|---------------------------|-----------------------|---|
| 1        | MMCR   |                           |                       | Upgrade system  |
|          |        | 11-Jun-06                 | 8                     | System upgrade commenced. Computers installed and running.  |
|          |        | 12-Jun-06                 | 23                    | Upgraded/modified Radian receiver and interface chassis. Installed patch interface panel, continued configuration of software on MMCR computers |
|          |        | 13-Jun-06                 | 11                    | Continued modifications and commenced checking calibration  |
|          |        | 14-Jun-06                 | 12                    | Continued calibration and fault finding procedures on MMCR  |
|          |        | 15-Jun-06                 | 12                    | MMCR upgrade continued, removed excess equipment etc. Checking spare interface unit fault   |
|          |        | 16-Jun-06                 | 5                     | Radar fault fixed and operational   |
| 2        | MMCR   |                           |                       | Change out fan for Radian Receiver, 12 VDC  |
| 3        | MMCR   |                           |                       | Change out TWTA desiccant   |
| 4        | MMCR   |                           |                       | Change out electronics rack battery (UPS)   |
|          |        | 16-Jun-06                 | 1                     | Completed   |
| 5        | MMCR   |                           |                       | Train Observers on HD swap and shipping   |
|          |        | 16-Jun-06                 | 1                     | Completed   |

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| 6        | GPSS   |                           |                       | Check GPS Suominet operations   |
|          |        | 11-Jun-06                 | 2                     | Check system - rebooted no obvious problem but will continue to monitor   |
|          |        | 12-Jun-06                 | 0.5                   | Checked Suominet - web page not updating - need someone to confirm if system is working in Manus - last update appears to be day 148. |
|          |        | 14-Jul-06                 |                       | No advice   |
|          |        | 15-Jun-06                 | 0.5                   | Suominet now confirmed to be operating  |
| 7        | GENSET |                           |                       | Oversee routine 250-hr maintenance (due at 1063 hrs) - Hasting Deering to visit site  |
|          |        | 11-Jun-06                 | 6                     | Genset maintenance started  |
|          |        | 12-Jun-06                 | 2                     | Maintenance completed   |
| 8        | GENSET |                           |                       | Clean and degrease floor - Hastings Deering   |
|          |        | 12-Jun-06                 | 2                     | Floor cleaned as best possible. Need degreasers etc to properly clean   |
| 9        | GENSET |                           |                       | Repair airflow shutters - Hastings Deering  |
|          |        | 12-Jun-06                 | 0.5                   | shutters appear to be working ok  |
| 10       | GENSET |                           |                       | Check fuel indicators   |
| 11       | COMM   |                           |                       | Install and test Nera SAT phone   |
|          |        | 11-Jun-06                 | 1                     | Sat phone installed - email sent to Dick Eagan to check remote dialup - checked call to Australia and no dropouts.                    |
|          |        | 13-Jun-06                 | 1.5                   | Confirmed US can dial into the satphone and we can dial to the US. We need another data check on the system.                          |
|          |        | 14-Jun-06                 | 2                     | Problem resolved. Problem due to terrestrial speed settings between equipment.  |
| 12       | IRT    |                           |                       | Check/change SKYRAD IRT Gold Mirror   |
|          |        | 11-Jun-06                 | 0.5                   | Mirror replaced about +3 degrees change in readings with new mirror. Replacement done at 0505Z 11Jun06                                |
| 13       | IRT    |                           |                       | Check for higher-than-normal readings   |
|          |        | 12-Jun-06                 | 0.5                   | Readings appear ok  |
| 14       | CEIL   |                           |                       | Change out battery  |
|          |        | 14-Jun-06                 | 0.5                   | Ceilometer battery changed out  |

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| 15       | CEIL      |                           |                       | Computer upgrade (w/ Dell GX270)   |
|          |           | 15-Jun-06                 | 1.5                   | Replaced computer. IBM 600 laptop Serial number 78HPW26 (Los Alamos 767072) removed and Dell GX270 WD45416 installed with LCD screen model LCD1512 Sno 41529546GA. |
| 16       | TSI       |                           |                       | Check mirror for rust - See if Observers are waxing mirror as instructed in Monthly Rounds; Make changes to procedure if necessary                                 |
|          |           | 11-Jun-06                 | 1.5                   | Replace mirror assembly and align. Camera alignment adjusted to center camera  |
| 17       | TSI       |                           |                       | Check desiccant packs, replace if necessary  |
|          |           | 11-Jun-06                 | 0.5                   | Checked and ok.  |
| 18       | SMET      |                           |                       | Replace anemometer   |
|          |           | 11-Jun-06                 | 1                     | Anemometers found in storage van   |
|          |           | 15-Jun-06                 | 2                     | Anemometer 18427, propeller 44669 taken out of service and anemometer 18425 prop 44678 placed into service at 0630z.   |
| 19       | DS        |                           |                       | Change out UPS battery   |
|          |           | 15-Jun-06                 | 2                     | UPS batteries changed out  |
| 20       | SMET      |                           |                       | Take inventory of instruments including spares   |
|          |           | 15-Jun-06                 | 0.5                   | Anemometer 31102, prop 58342 on site spare.  |
| 21       | NWS Radio |                           |                       | Install HF antenna for NWS   |
|          |           | 11-Jun-06                 | 1.5                   | Antenna prepared for installation.   |
|          |           | 15-Jun-06                 | 3                     | Antenna installed into E Van. Comms with Port Moresby Met center confirmed at 5x9.   |
| 22       | OTHER     |                           |                       | Technical induction for Taddy Barras   |
|          |           | 15-Jun-06                 |                       | Training/working with Taddy over the last few days as an ongoing process   |
| 23       | OTHER     |                           |                       | Complete Maintenance Checklist   |

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| 24       | DS           |                           |                       | <b>Install and check replacement R1 computer</b>   |
|          |              | 13-Jun-06                 | 2.5                   | Replaced R1 with a GX620. Initial GX620 appears to have failed on the video, rebuilt system and reprogrammed a spare GX620. Installed new R1 at the normal R1 IP address and the old R1 at .243 so Ron Reed can swap over the user accounts  |
|          |              | 14-Jul-06                 | 1                     | Completed installation of R1, removed and stored HP ePC as backup unit.  |
| 25       | Hogen        |                           |                       | <b>Repair water treatment plant</b>  |
|          |              | 13-Jun-06                 | 3                     | Started to check water treatment plant problem. Refitted the 3rd filter and stopped the water leaks from it. When trying to start the plant it continuously fails on lo pressure. Have referred to the hydrogen section for advice.  |
|          |              | 14-Jun-06                 | 3                     | Ended up talking to Fresh water systems and found details on how to prime the water system. Followed their procedure without total success, but managed to "fluke" getting it to work. All that was involved was turning the control switch from prime to auto immediately without stopping in the off position and this worked. System is currently producing water.                                      |
| 26       | Electrolyser |                           |                       | <b>Repair electrolyser</b>   |
|          |              | 13-Jun-06                 | 4                     | During normal checks the cells were overfilled. The inlet manometer blew its water out of the tube. I assisted the observers in removing the excess fluid from the cells and replaced the water in the manometer. The electrolyser starts and all indications are gas is being generated but it is not filling the bell housing. Have referred to Troy and John for additional ideas - water in lines etc. |
|          |              | 14-Jun-06                 | 3                     | Leak found in inlet manometer connections, repaired and tested electrolyser. Generating gas today.   |
| 27       | AWS          |                           |                       | <b>Repair AWS raingauge</b>  |
|          |              | 14-Jul-06                 | 1                     | Checked rain gauge operation, observers reported it was not reporting rainfall. Used secondary switch in unit as main switch was faulty. This will need to be replaced to allow the TBRG to be connected to the Smet system.   |

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| 28         | SHIPPING     |                           |                       | List items to be shipped following visit   |
|            |              |                           |                       | ORG 115 Test Kit to Darwin   |
|            |              |                           |                       |  |
| 29         | FUTURE NEEDS |                           |                       | List items needed for future visits (spares, etc.)   |
|            |              |                           |                       | Degreaser for genset floor   |
|            |              |                           |                       | 1/4 inch nuts  |
|            |              |                           |                       | AWS TBRG switch(BoM to order)  |